NRCS
Natural Resources Conservation Service
Wyoming

FUEL BREAK - 383

Conservation Practice Specifications/Job Sheet

WY-ECS-33

JANUARY 2007

Figure 1. A fuel break on forest land involves the reduction of flammable materials, elimination of ladder fuels, and increasing the spacing of residual trees to minimize risk of crown fires.

Fuel Break

A strip or block of land on which the vegetation, debris and detritus have been reduced and/or modified to control or diminish the risk of the spread of fire crossing the strip or block of land. For a complete version of the conservation practice standard, go to the eFOTG (http://www.nrcs.usda.gov/technical/efotg/).

Purpose

Control and reduce the risk of the spread of fire by treating, removing or modifying vegetation, debris and detritus.

Where Used

This practice applies on all land where protection from wildfire is needed. A fuel break is typically an easily accessible strip of land of varying width (depending on fuel and terrain), in which fuel density is reduced, thus improving fire control opportunities.

Conservation Management System

Fuel breaks are planned and located at strategic locations on the landscape as part of a conservation management system for a land unit having an undesired risk of wildfire. They break up large, continuous tracts of dense natural fuels, thus limiting uncontrolled spread of wildfire, and are commonly associated with firebreaks (permanent or temporary strips of bare or vegetated land planned to retard fire). Fuel breaks aid firefighters by slowing fire spread under normal burning conditions. However, under extreme conditions, even properly designed fuel breaks stand little chance of arresting a large fire, regardless of firefighting efforts. Such fires, in a phenomenon called “spotting,” can drop firebrands ahead of the main fire, causing very rapid fire spread. These types of large fires may continue until there is a major change in weather conditions, topography, or fuel type.

Figure 2. Brush concentrations on rangeland can ignite and increase the intensity of uncontrolled wildfires and threaten buildings and other structures in downwind locations.

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Client/Operating Unit:				Farm No.:	
Farm/Ranch Location:		Field No.:		Program:	
Planned Installation Date:				Treatment Acres:	

Installation shall be in accordance with the following specifications, drawings, and other requirements. NO CHANGES ARE TO BE MADE IN THE SPECIFICATIONS WITHOUT PRIOR APPROVAL BY AN AGENCY REPRESENTATIVE.

Specifications

Fuel breaks shall comply with the following items, and any additional specifications based on purpose(s).

1. All activities associated with applying this practice shall comply with federal, state, tribal and local forestry and related laws and regulations. It is the landowner's responsibility to obtain appropriate permits and/or applications prior to commencing an activity.

2. Land use: ☐ Forestland, ☐ Rangeland, ☐ Other: _____

3. Purpose is to protect: ☐ Adjacent site resources, ☐ Structure(s)*, ☐ Other
   Brief explanation: _____
   _____

4. Potential ignition sources (check those that apply): ☐ Developments/homes,
   ☐ Public roads, ☐ Railroads, ☐ Recreation sites, ☐ Utilities (e.g. power lines),
   ☐ Other: _____

5. Locate fuel break(s) between the ignition source and the resources/structures to be protected and as close as feasible to the ignition source. Favor locations for fuel break(s) that are below valleys or canyons leading up to saddles to reduce the risk of fires moving upslope (chimney effect) and spreading to adjacent areas. Also, favor locations along ridgelines.

**Note: Fuel Break-383 specifications are designed primarily to reduce the spread of wildfire and will not meet defensible space guidelines (re. Protect Your Home From Wildfire -Firewise Wyoming, 2003). However, specifications may meet partial requirements for zone 2. Additionally, Firebreak-394 may meet partial requirements for zone 1. Forest Stand Improvement-666 and associated conservation management system practices may meet partial requirements for zone 3.*

Specifications (continued)

6. The dimensions of the fuel break (width and length) shall be sufficient to reduce fire spread and intensity. Width on level ground shall be a minimum of 150 feet for rangeland, and other non-forestland sites and a minimum of 300 feet on forest land sites. Add 10 feet to the width for every 10 percent increase in slope (e.g., a width of 360 feet would be used on a 60 percent slope). Length shall match the length of the ignition source to the extent feasible.

7. Connect fuel break(s) to natural or artificial fire barriers such as rivers, creeks, large rock outcrops, wet meadows, roads, or areas with low fuel loads/cover or flammability. Existing natural or artificial barriers are included in the total fuel break acres. Favor locations that are linked to road systems to facilitate fire-fighting access.

8. Reduce or modify the existing fuel load (vegetation and debris) sufficiently to diminish the risk and/or rate of the spread of fire crossing the strip or block of land using techniques suitable to the material to be treated, e.g., mowing, prescribed grazing, pruning, removal, chipping, and masticating.

9. Feather the edges of the fuel break(s) as feasible into the adjacent protected areas for aesthetic purposes.

10. For fuel break(s) where revegetation is needed to supplement treatment of existing vegetation (e.g., reseeding of disturbed areas, road cuts and fills), reference the FireWise Plant Materials (Quick Facts #6.305, CSFS), Grass Seed Mixes to Reduce Wildfire Hazard (Quick Facts #6.306, CSFS) and follow local NRCS species/planting specifications.

11. Soils, site factors, and timing of application must be suitable for any ground-based equipment utilized for creating a fuel break to avoid excessive compaction, rutting, or damage to the soil surface layer. Equipment will be used on the contour where feasible. For safety purposes and to protect site resources, treatment methods involving equipment are generally not applied on slopes exceeding 35 percent.

12. Regrowth of natural or planted vegetation will be controlled by pruning, mowing, or other technique to maintain the specified reduced fuel load.

13. Remove all standing dead trees and shrubs except for a limited number of large, dead "wildlife" trees (usually 2-3 trees/acre $\geq$14" diameter-at-breast-height and currently being used or occupied by wildlife). Remove all downed dead trees and shrubs within the zone if they are solid (not rotten) and are not yet embedded into the ground. Downed trees that are embedded into soil and which cannot be removed without soil disturbance will be left in place. Chipping and masticating of dead material can be used as an alternative to removal provided materials are not contiguous or exceed a depth of 3 inches.

Specifications (continued)

14. For areas with trees 13 feet in height or greater, horizontal crown separation is more critical for fuel breaks than a fixed tree canopy cover. Trees shall have a minimum 10-foot spacing between the edges of tree crowns on level ground as shown in figure 3. Spacing will be increased by 2 feet for each 5 percent increase in slope. Small, isolated groups of trees may be retained for visual diversity. Additionally, trees and understory shrubs shall be horizontally separated by 2 times the height of the representative shrubs as shown in figure 4. Vertical separation between the lower bound of the tree crowns and upper bound of the understory fuel layer shall average 3 times the height of understory fuel layer as shown in figure 4 and never closer than 2 times the height. For sites where vertical separation cannot be consistently achieved, remove that part of the overstory and/or understory fuel layer to maintain the minimum separation.

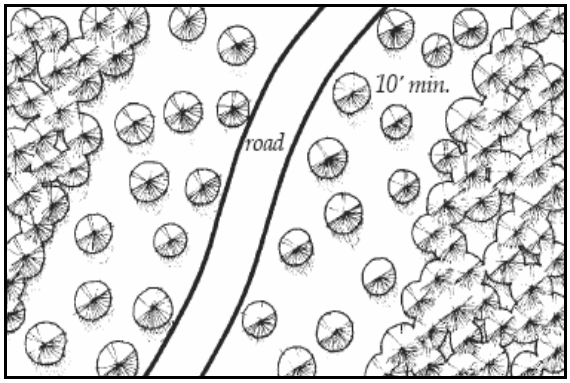

Figure 3. Plan view of tree crown separation.

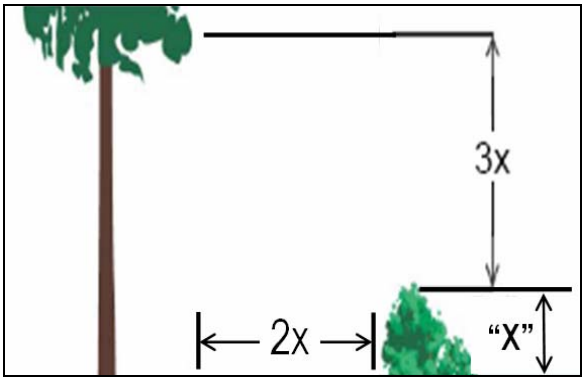

Figure 4. Separation between fuel layers.

15. For areas with trees or shrubs less than 13 feet in height, spacing individual plants shall be based on plant height and achieve minimum distances specified in figure 5.

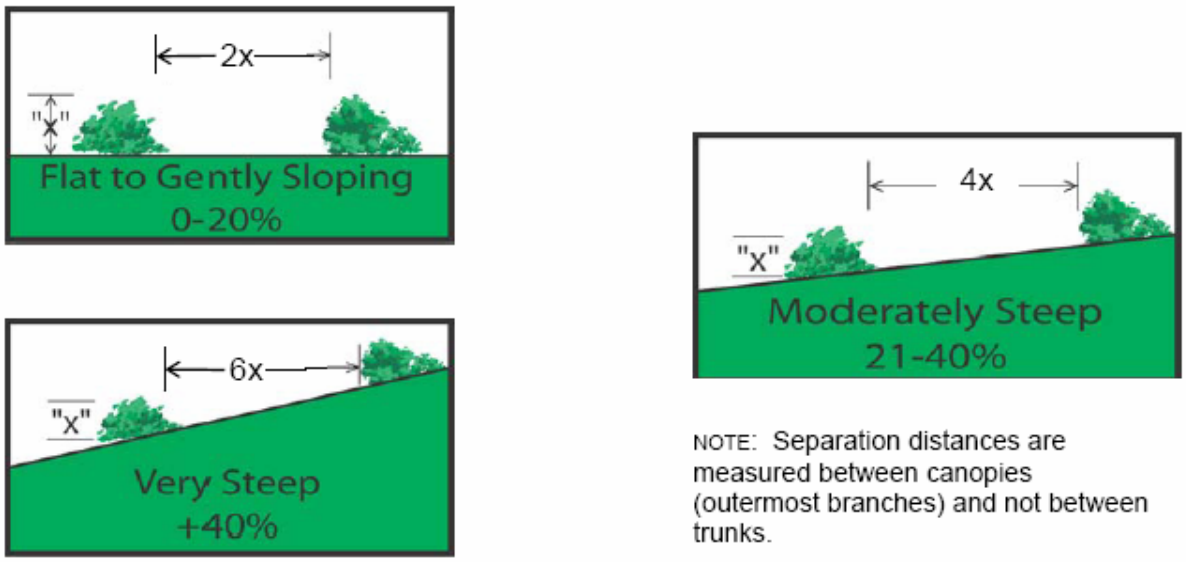

Figure 5. Minimum spacing requirements for small trees and shrubs.

Layout Sketch and Drawing

(Provide sketch, drawings, maps, and/or aerial photos.)

Scale 1"=_____ ft. (NA indicates sketch not to scale: grid size=1/2" by 1/2")

Additional Clarifying Notes (technical, programmatic, etc.):

Practice Specifications Approval and Completion Certification

DESIGN AND INSTALLATION/LAYOUT APPROVAL:

I have job approval authority and certify this practice has been designed with specifications to meet the conservation practice standard and that the client has been advised of installation and layout elements:

NRCS Representative name and title (type or print):		
NRCS Representative Signature:		Date:

LANDOWNER/OPERATOR ACKNOWLEDGES:

a. I have received a copy of the specifications and understand the contents including the scope and location of the practice.
b. I have obtained all necessary permits and/or rights in advance of practice application, and will comply with all ordinances and laws pertaining to the application of this practice.
c. No changes will be made in the installation of the job without prior concurrence of the NRCS.
d. Maintenance of the installed work is necessary for proper performance during the 5-year life of the practice.

I have reviewed all specifications and agree to install as specified:

Landowner/operator name and title (type or print):		
Landowner/operator Signature:		Date:

RECORD OF COMPLETION AND CHECK OUT CERTIFICATION:

Treated Acres:	Total Fuel Break Acres:	Date Completed by Client:	Date Certified:	Approver's Initials:

I have job approval authority and certify this practice has been applied and meets design specifications:

NRCS Representative name and title (type or print):		
NRCS Representative Signature:		Date:
Notes:		